



Porsche Arena, Stuttgart

GEZE TSA 160 NT and variants

Swing Door Drive for Automatic Doors



BEWEGUNG MIT SYSTEM

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DOOR TECHNOLOGY



GLASS SYSTEMS



AUTOMATIC DOOR SYSTEMS



RWA AND WINDOW TECHNOLOGY



SAFETY TECHNOLOGY

Reliably open and close doors

It may sound simple but this requires highly sophisticated technology.

The swing door system TSA 160 NT makes sure that everything runs smoothly, day after day from second to second.

At the same time it offers a maximum convenience and safety.

The swing door systems TSA 160 NT easily cope with the frequently tough duties of everyday functions, whilst maintaining safety.

Where it is too cumbersome to operate a door by hand, the swing door system TSA 160 NT takes over this job. This provides particular benefits in shops and department stores, hospitals and schools, in homes for the elderly or disabled, as well as in airports and railway stations.

Where doors shut quickly, safely and tight, we can of course also expect a significant contribution to energy savings. Therefore, the tried and tested TSA 160 NT system is frequently used for lobbies, entrances to workshops and cool rooms as well as for doors at the end of corridors.

Likewise, where the highest demands are placed on hygiene, the GEZE swing door actuators are frequently found.

Fields of application at a glance

Where help is needed:

- ▶ Old-peoples homes
- ▶ Homes as well as workshops for disabled people
- ▶ Hospitals, rehabilitation centres
- ▶ Public buildings, airports, stations
- ▶ Schools, kindergartens

Where energy has to be saved:

- ▶ Exterior doors, corridor end doors
- ▶ Draught-proof systems
- ▶ Workshops, ateliers, studios

Where hygiene is required:

- ▶ Hospitals, surgeries
- ▶ Social rooms, toilets
- ▶ Food manufacturing shops and pharmaceutical industry

Where comfort is the choice:

- ▶ Shops and department stores
- ▶ Schools, kindergartens and public buildings
- ▶ Airports and stations

Where safety is the first priority:

- ▶ Safety locks and access control
- ▶ Fire and smoke prevention purposes

Safety first

The TSA 160 NT actuators are the trusted solution for safety at work, access control as well as interlocks and of course this system fulfills the regulation DIN 18650.

An additional safety feature are the GEZE safety sensors, which control the opening and closing action. These sensors will stop the movement of the door in time, if people, animals or movable objects are within the swing opening range of the door.

In emergencies they can save lives: The swing door systems TSA 160 NT F and TSA 160 NT F-IS are approved for the use on smoke and fire doors.



Landesbank Baden-Württemberg, Stuttgart

For single-leaf doors

Range of application

The TSA 160 NT system is adaptable to fit your requirements.

For new construction or refurbishment, for inside or outside areas.

In addition, there are a broad range of materials to use with the TSA 160 NT; timber, steel, plastic or aluminium. It only should be dry and the ambient temperatures should be within the usual limits (– 10 °C to + 60 °C).

The small dimensions (100x120x690 mm) make it particularly easy for the designer and fitter. And of course, they fit well in a retrofit situation.

Nevertheless, TSA 160 NT actuators are rugged and powerful. They will open doors up to 250 kg in weight and with maximum door widths up to 1400 mm without any problem and still perfectly control the closing action. The same actuator can be used for left or right handed doors.

Functions and benefits

The electrohydraulic swing door actuators TSA 160 NT ensure total satisfaction in connection with all doors. A hydraulic pump system controls the open state and the closing spring mechanism governs the closing process. The door system remains optical and acoustical, whilst unobstructive. The construction with vibration dampers ensures a low noise level.

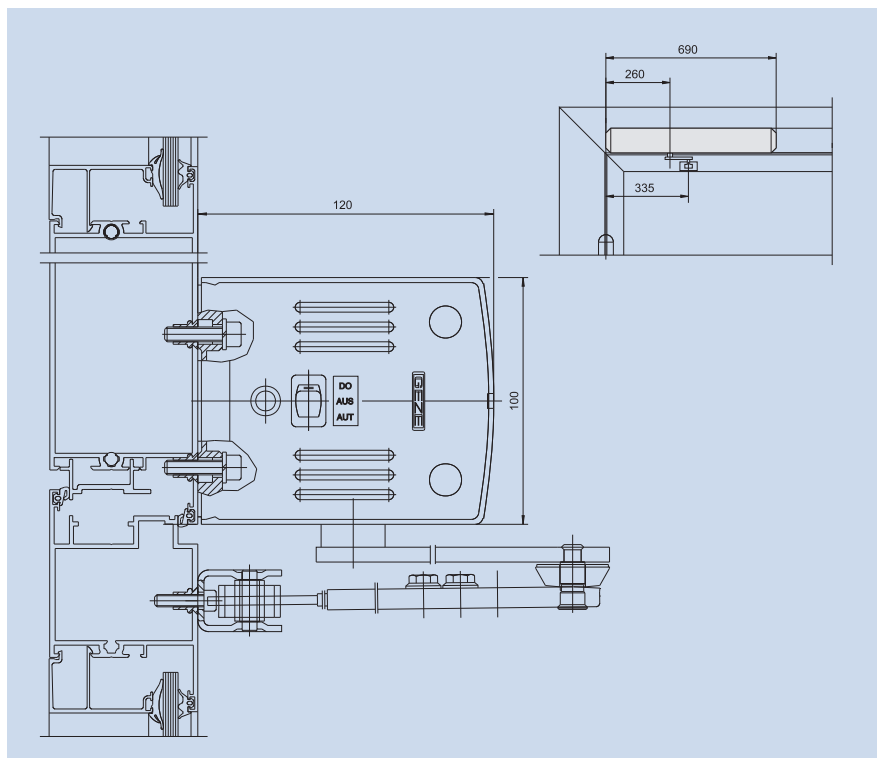
All TSA 160 NT systems are extremely cost-effective. They require very little energy and service. As far as comfort is concerned, the TSA 160 NT is not at all modest. The drive can be combined with all known control options and offers a system ready to be fitted – if required with remote control.

Even power cuts are no problem for the TSA 160 NT. In this case the door can be opened manually just as any normal door.

Manual opening is also possible at any time while the actuators are switched on.



Roosendaal, Nederland



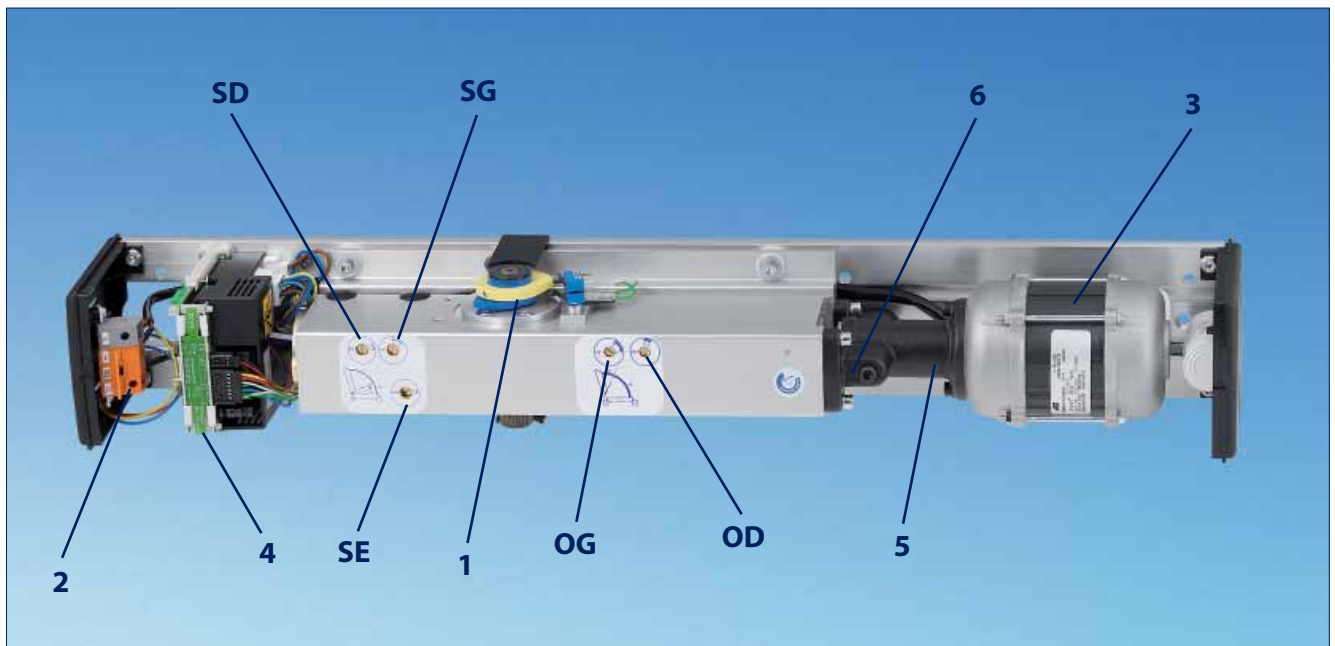
The TSA 160 NT is a swing door actuator with electronic control and integrated programme switch with the positions "off", "automatic" and "hold open".

The system can be fitted to left and right handed doors with a pulling or pushing function - for pushing function with linkage and for pulling function with guide rail.

Depending on the design and arrangement it is possible to achieve opening angles of up to 115°.

Apart from the opening speed, the closing force and closing speed can be fully adjusted. The latching action can be adjusted as well through a valve. The TSA 160 NT is mounted at the head of the door on the hinge side or the opposite hinge side.

The TSA 160 NT is designed for door widths up to 1400 mm. In the pulling version the minimum door width is dependent on the mounting of the actuator (actuator offset) and the required opening angle of the door.



Swing door actuator TSA 160 NT in detail:

- 1 Motor shaft
- 2 Line fuse
- 3 Electric motor
- 4 Control
- 5 Hydraulic pump
- 6 Closing force adjustment
- SG Closing speed
- SD Closing damping
- SE Latching adjustment
- OG Opening speed
- OD Back check

WC-compartments for disabled people

Functional description

- ▶ After the pad switch (2) has been operated, the toilet door opens and closes automatically upon lapse of a presettable hold-open time.
- ▶ By operating the changeover switch (6) inside the toilet cabin, the user activates the illuminated sign "OCCUPIED" (3) outside the compartment as well as the control lamp (7) at the changeover switch. Simultaneously the interior and exterior pad switch (5) is switched off, thus the door can neither be opened by a third person nor by the user by accident.

The active door opener prevents that the door can be opened manually.

- ▶ To leave the toilet, the user again operates the changeover switch (6), the sign "OCCUPIED" outside the compartment as well as the control lamp goes out.

By operating the interior pad switch "DOOR OPEN" (8) the door will immediately open.

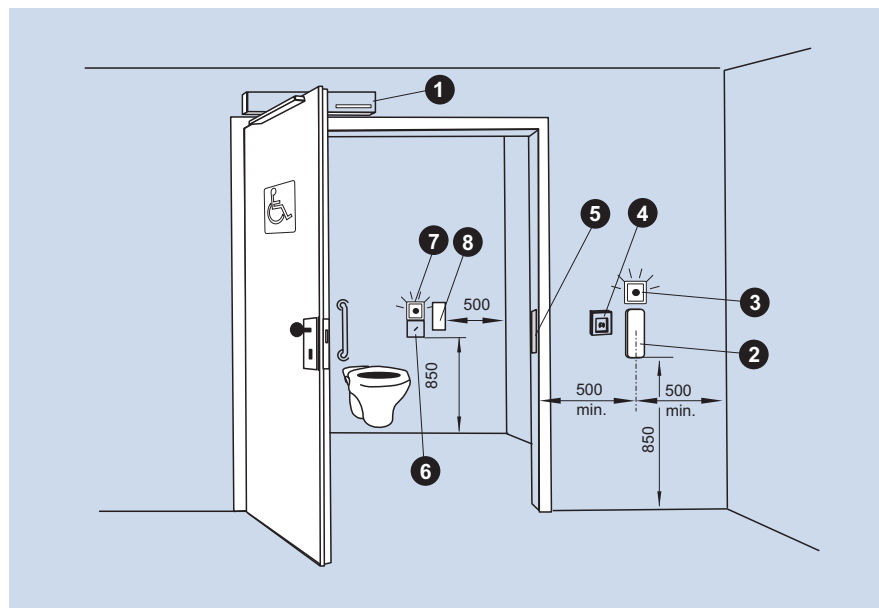
- ▶ In the case of power failure the user has the possibility to open the door manually by pushing or pulling it open, the closed-circuit opener is unlocked.
- ▶ The door can also be opened from inside by operating the door handle, even if the system is live.
- ▶ In an emergency the door can also be manually opened from outside using a key or by operating the emergency cutout (4).

The following kit is required for the door locking mechanism:

- ▶ 1 door-change fittings (exterior button, interior pusher)
- ▶ 1 latch lock
- ▶ 1 profile or cylinder locking system
- ▶ 1 standby current door opener, 24 V DC



Köln-Bonn Airport



TSA 160 WC-compartment for disabled people

- (1) Swing door actuator TSA 160
- (2) Pad switch "DOOR OPEN", outside
- (3) Illuminated sign "OCCUPIED", outside
- (4) Emergency cutout
- (5) Door opener
- (6) Changeover switch locked / unlocked
- (7) Illuminated sign "OCCUPIED", inside
- (8) Pad switch "DOOR OPEN", inside

For double-leaf doors

For double-leaf doors the swing door system TSA 160 NT offers different options:

► **TSA 160 NT IS**

If you require an integrated control of the closing sequence – as required for fire doors – you are on the safe side with the TSA 160 NT-IS.

As an alternative, you can separate actuators for each half of the double-leaf door and link these through an intermediate cover. This will ensure complete synchronisation of the two TSA 160 NT systems.

► **TSA 160 NT / TSA 162**

You can also choose a lower cost alternative: one TSA 160 NT in combination with a TSA 162. The TSA 162 operates as a slave actuator and is reliably controlled by the master actuator. It can be upgraded to a TSA 160 NT at any time.

► **TSA 160 NT IS / TS**

Pulling or pushing, with integrated door closing sequence selector. The active leaf is automated; fixed leaf with door closer function and permanent hold-open.



Porsche Arena, Stuttgart

Approved for fire protection

Ideal for single-leaf and double-leaf fire-proof doors. In the case of fire it is essential that the door actuator system operates well: A clear case for the GEZE TSA 160 NT F. This system has been approved for single-leaf fire doors, mounted at the head of the door and equipped with an electric door strike (DIN 18763). The approval has been given for the “push” version of the door. This means that the actuator is mounted on the opposite side of the hinges at the head of the door. The TSA 160 NT F will move doors with a width up to 1400 mm or a maximum weight of 250 kg.

Just like the other TSA 160 NT systems, the TSA 160 NT F can be operated with all known control systems. It is possible to start the actuator through various contact devices (radar, infrared, light curtains, switches). Before start-up the catch bolt must be released. For this reason the door frame must be equipped with an electromagnetic door strike. When using the TSA 160 NT F for smoke and fire doors, certain monitoring equipment such as smoke detectors are required, which will in the case of fire deactivate all contact devices opening the door, release the door from a fixed position and disconnect the door strike from the electricity. The actuator is started up again by pressing the reset switch on the actuator. The control of the network relay (24 V/DC) is carried out by the smoke switch, whilst the energy to the actuator (230 V/AC) comes from the main supply.

The TSA 160 NT F demonstrates its flexibility also with smoke alarm systems and has been approved for all major systems. Official approvals are available on request.

In the case of fire the most important factor for double-leaf doors is, that the closing sequence must function one hundred percent. This can be guaranteed only with an integrated closer control – it may become a question of survival. In the case of danger or a power cut the TSA 160 NT F-IS will ensure the correct closing sequence of both halves of the double-leaf door. The TSA 160 NT F-IS does not require an externally fitted closer control mechanism and is, therefore, visually, a more sophisticated system. Of course, it is also approved for double-leaf smoke and fire protection doors.

The cabling and release mechanism of the TSA 160 NT F-IS are accommodated in the intermediate cover, making the installation easy. In other words: the amount of cabling required from the electrical contractor is no more than needed for single door actuators.

The technical characteristics of the GEZE TSA 160 NT F-IS are identical to the TSA 160 NT F.

Range of sizes for appropriate door widths in accordance with European Standard DIN EN 1154

EN size 3	max. 950 mm
EN size 4	max. 1100 mm
EN size 5	max. 1250 mm
EN size 6	max. 1400 mm



Landesbank Baden-Württemberg, Stuttgart

Technical data – mechanical

	TSA 160 NT	TSA 160 NT F	TSA 160 NT IS	TSA 160 NT F-IS
Application	single-leaf	single-leaf incl. approval for fire-proof doors ^{*)}	double-leaf	double-leaf incl. approval for fire-proof doors
Function	pushing or pulling	pushing	pushing or pulling	pushing
Max. leaf width (comp. to EN 1154)	1400 mm	1400 mm	1400 mm	1400 mm
Min. hinge dimension			1470 mm	1470 mm
Max. hinge dimension			2800 mm	2800 mm
Max. leaf weight	250 kg	250 kg	250 kg	250 kg
Options	<ul style="list-style-type: none"> · Linkage for soffit depth 0-100 mm, 100-200 mm, 200-350 mm · Spindle extensions of 24 mm, 30 mm, 45 mm · Mounting plate · Intermediate cover kit for double-leaf systems 			

Technical data – electric

	TSA 160 NT TSA 160 NT F TSA 160 NT IS TSA 160 NT F-IS	TSA 162 (Secondary drive for double-leaf systems, controlled by TSA 160 NT)
Mains connection	230 V AC 50/60 Hz + 10% / - 14%	230 V AC 50/60 Hz
Power consumption approx.	300 VA	300 VA
Supply voltage	24 V DC 1200 mA	
Integrated programme switch	Permanently open – OFF – Automatic	
In the case of power failure	Door closer function	Door closer function

Function, infinitely variable

Closing force	EN size 3 ... 6	Opening speed	via hydraulic valve
Hold-open time	0 ... 60 seconds	Closing speed	via hydraulic valve
Door opening angle	up to 115°	Latching action	via hydraulic valve

GEZE GC 334 Sensor strip

The GC 334 is an electronically adjustable sensor strip with dipswitch for safeguarding of automatic revolving doors and swing doors (for example TSA 160 NT) in accordance with DIN 18650.

Finish

- ▶ Length 350 mm incl. 1 sensor module
- ▶ Length 1100 mm incl. 2 sensor modules
- ▶ Length 1500 mm incl. 3 sensor modules
- ▶ in EV1 or RAL colours



GEZE GC 334 Sensor strip

Application example

Active infrared sensors are used for safeguarding of the pivoting range of automatic swing door drives.

- ▶ Operation of sensor "safety open":
The door movement is interrupted in the opening direction as soon as the safety sensor registers a person or an obstacle
- ▶ Operation of sensor "safety closed":
The door movement is interrupted in the closing direction. Simultaneous actuation causes a renewed opening of the door as soon as the safety sensor registers a person or an obstacle.



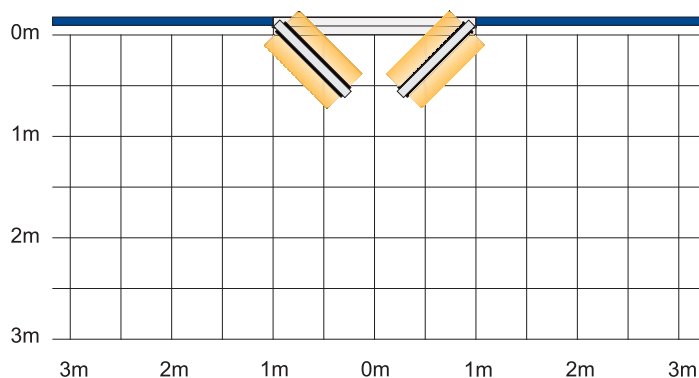
Detection area

- ▶ 0,44 x 0,07 m per sensor module

Stated values measured at fitting height of 2,2 m

Number of modules per sensor strip

Fitting height 2,2m	Door leaf width						
	0,8 m	0,9 m	1,0 m	1,1 m	1,2 m	1,3 m	1,4 m
	2 modules				3 modules		



Releasing the actuator

Actuation devices

It depends on the duty case. If the door is passed by wheel chairs, stretchers or persons carrying bulky objects, this will have consequences for the selection of the optimum actuation devices.

Just set the actuation in such a way that the normal walking speed is sufficient to pass through the door.

Swing door systems TSA 160 NT can be electronically actuated by all known possibilities:

- ▶ Active infrared movement detectors
- ▶ Radar movement detectors
- ▶ Direction-sensing radar movement detectors
- ▶ Key-operated switch
- ▶ Pull switch
- ▶ Foot-operated contact switch
- ▶ Switch pad
- ▶ Radio control
- ▶ Actuation sensors
- ▶ Code cards



Radar Movement Detector GEZE GC 302



Push Pad



Radio Control (Hand-Held Transmitter)

**GEZE GmbH**

P.O. Box 1363
71226 Leonberg
Germany

GEZE GmbH
 Reinhold-Vöster-Straße 21-29
 71229 Leonberg
 Germany
 Telefon +49 (0) 7152-203-0
 Telefax +49 (0) 7152-203-310

www.geze.com

Germany

GEZE GmbH
 Niederlassung Nord/Ost
 Bühringstraße 8
 13086 Berlin (Weissensee)
 Tel. +49 (0) 30-47 89 90-0
 Fax +49 (0) 30-47 89 90-17
 E-mail: berlin.de@geze.com

GEZE GmbH

Niederlassung West
 Nordsternstraße 65
 45329 Essen
 Tel. +49 (0) 201-83082-0
 Fax +49 (0) 201-83082-20
 E-mail: essen.de@geze.com

GEZE GmbH

Niederlassung Mitte
 Adenauerallee 2
 61440 Oberursel (b. Frankfurt)
 Tel. +49 (0) 6171-63610-0
 Fax +49 (0) 6171-63610-1
 E-mail: frankfurt.de@geze.com

GEZE GmbH

Niederlassung Süd
 Reinhold-Vöster-Straße 21-29
 71229 Leonberg
 Tel. +49 (0) 7152-203-594
 Fax +49 (0) 7152-203-438
 E-mail: leonberg.de@geze.com

GEZE Sonderkonstruktionen

GmbH
 Planken 1
 97944 Boxberg-Schweigern
 Tel. +49 (0) 7930-9294-0
 Fax +49 (0) 7930-9294-10
 E-mail: sk.de@geze.com

GEZE Service GmbH

Reinhold-Vöster-Straße 25
 71229 Leonberg
 Tel. +49 (0) 7152-9233-0
 Fax +49 (0) 7152-9233-60
 E-mail: info@geze-service.com

Germany

GEZE Service GmbH
 Niederlassung Berlin
 Bühringstraße 8
 13086 Berlin (Weissensee)
 Tel. +49 (0) 30-470217-30
 Fax +49 (0) 30-470217-33

Austria

GEZE Austria GmbH
 Mayrwiesstraße 12
 5300 Hallwang b. Salzburg
 Tel. +43 (0)662-663142
 Fax +43 (0)662-663142-15
 E-mail: austria.at@geze.com

Asia Pacific

GEZE Asia Sales Ltd.
 No. 88-1-408, East Road
 Free Trade Zone of Tianjin Port
 Tianjin, P.R. China
 Tel. +86 (0)22-26 97 39 95-0
 Fax +86 (0)22 26 97 27 02
 E-mail: Asiasales-info@geze.com.cn

Baltic States

GEZE Baltic States
 Dzelzavas iela 120 S
 1021 Riga
 Tel. +371 (0)67 896 035
 Fax +371 (0)67 896 036
 E-mail: office-latvia@geze.com

Benelux

GEZE Benelux B.V.
 Leemkuil 1
 Industrierrein Kapelbeemd
 5626 EA Eindhoven
 Tel. +31 (0)40-26290-80
 Fax +31 (0)40-26290-85
 E-mail: benelux.nl@geze.com

China

GEZE Industries (Tianjin) Co., Ltd.
 Shuangchenzhong Road
 Beichen Economic Development
 Area (BEDA)
 Tianjin 300400, P.R. China
 Tel. +86 (0)22-26973995-0
 Fax +86 (0)22-26972702
 E-mail: Sales-info@geze.com.cn

GEZE Industries (Tianjin) Co., Ltd.
 Branch Office Shanghai
 Unit 25N, Cross Region Plaza
 No. 899 Ling Ling Road
 XuHui District
 200030 Shanghai, P.R. China
 Tel. +86 (0)21-523 40 960
 Fax +86 (0)21-644 72 007
 E-mail: gezesh@geze.com.cn

China

GEZE Industries (Tianjin) Co., Ltd.
 Branch Office Guangzhou
 Room 17C3
 Everbright Bank Building, No. 689
 Tian He Bei Road
 510630 Guangzhou, P.R. China
 Tel. +86 (0)20-38 73 18 42
 Fax +86 (0)20-38 73 18 34
 E-mail: gezegz@geze.com.cn

GEZE Industries (Tianjin) Co., Ltd.
 Branch Office Beijing
 No. 6-32 Building
 Jili Avenue
 Daxing District
 100076 Beijing, P.R. China
 Tel. +86-(0)10-87 97 51-77/-78
 Fax +86-(0)10-87 97 51-71
 E-mail: gezebj@geze.com.cn

GEZE Sonderkonstruktionen
 (Tianjin), Ltd.
 No. 6-32 Building
 Jili Avenue
 Daxing District
 100076 Beijing, P.R. China
 Tel. +86-(0)10-87 96 51-52
 Fax +86-(0)10-87 97 14-76
 E-mail: SalesSK-info@geze.com.cn

France

GEZE France S.A.R.L.
 ZAC de l'Orme Rond
 RN 19
 77170 Servon
 Tel. +33 (0)1-60626070
 Fax +33 (0)1-60626071
 E-mail: france.fr@geze.com

Hungary

GEZE Hungary Kft.
 Bartók Béla út 105 – 113
 1115 Budapest
 Tel. + 36 (0)1 481 4670
 Fax + 36 (0)1 481 4671
 E-mail: office-hungary@geze.com

Iberia

GEZE Iberia S.R.L.
 Pol. Ind. El Pla
 C/ Comerç, 2-22, Nave 12
 08980 Sant Feliu de Llobregat
 (Barcelona)
 Tel. +34 (0)9-02 19 40 36
 Fax +34 (0)9-02 19 40 35
 E-Mail info@geze.es

India

GEZE India
 409, Apeejay Business Center
 39, Haddows Road
 Chennai – 600 006
 Tamil Nadu
 Tel. + 91 (0)44 2821 1300
 Fax + 91 (0)44 2821 1300
 E-mail: office-india@geze.com

Italy

GEZE Italia Srl
 Via Giotto, 4
 20040 Cambiago (MI)
 Tel. +39 02 95 06 95-11
 Fax +39 02 95 06 95-33
 E-Mail italia.it@geze.it

GEZE Engineering Roma Srl
 Via Lucrezia Romana, 91
 00178 Roma
 Tel. +39 06-7265311
 Fax +39 06-72653136
 E-mail: roma@geze.biz

Kazakhstan

GEZE Central Asia
 384 Raiymbek ave., 3rd Floor
 050061 Almaty
 Tel. + 7 (0)777 265 06 05
 E-mail: office-kazakhstan@geze.com

Poland

GEZE Polska Sp. z o.o.
 ul. Annopol 3 (Zeran Park)
 03-236 Warszawa
 Tel. +48 (0)22-8142211
 Fax +48 (0)22-6142540
 E-mail: geze@geze.pl

Romania

GEZE Romania
 Str. Ionescu Baican nr. 22
 021835 Bucuresti, sector 2
 Tel. +40 (0)21 250 77 50
 Fax +40 (0)21 250 77 50
 E-mail: office-romania@geze.com

Russian Federation

GEZE Russia
 Kolodessnij pereulok 3, Str. 25
 Office No. 5201-5203
 107076 Moscow
 Tel. +7 (0)495 589 9052
 Fax +7 (0)495 589 9051
 E-mail: office-russia@geze.com

Scandinavia

GEZE Scandinavia AB
 Mallslöngen 10
 Box 7060
 18711 Täby, Sweden
 Tel. +46 (0)8-7323-400
 Fax +46 (0)8-7323-499
 E-mail: sverige.se@geze.com

GEZE Scandinavia AB avd. Norge
 Postboks 63
 2081 Eidsvoll , Norway
 Tel. +47 (0)6 39-57 200
 Fax +47 (0)6 39-57 173
 E-mail: norge.se@geze.com

GEZE Finland
 Branch office of GEZE Scand. AB
 Postbox 20
 158 71 Hollola
 Tel. +358 (0)10-400 51 00
 Fax +358 (0)10-400 51 20
 E-mail: finland.se@geze.com

Scandinavia

GEZE Denmark
 Branch office of GEZE Scand. AB
 Høje Taastrup Boulevard 53
 2630 Taastrup
 +45 (0)46-323324
 +45 (0)46-323326
 E-Mail: danmark.se@geze.com

South Africa

DCLSA Distributors (Pty.) Ltd.
 1027 Richards Drive, Midrand
 P.O. Box 7934
 Midrand 1685
 Tel. +27 (0)11 315 82 86
 Fax. +27 (0)11 315 82 61
 E-mail: info@dclsa.co.za

Switzerland

GEZE Schweiz AG
 Bodenackerstrasse 79
 4657 Dulliken
 Tel. +41 (0)62-285 54 00
 Fax +41 (0)62-285 54 01
 E-mail: schweiz.ch@geze.com

GEZE Security Systems GmbH
 Bodenackerstrasse 79
 4657 Dulliken
 Tel. +41 (0)62-285 55 00
 Fax +41 (0)62-285 55 01
 E-mail: schweiz.ch@geze.com

Turkey

GEZE Turkey
 Atatürk mah. Ata 2-3
 PLAZA kat 9 D. 84
 34757 Atasehir – Istanbul
 Tel. + 90 (0)216 4554315
 Fax + 90 (0)216 4558215
 E-mail: office-turkey@geze.com

Ukraine

GEZE Ukraine
 Vikentija Hvojki str. 21
 Office 151
 04655 Kiev
 Tel. +380 (0)44 499 77 25
 Fax +380 (0)44 499 77 25
 E-mail: office-ukraine@geze.com

United Arab Emirates/GCC

GEZE Middle East
 P.O. Box 17903
 Jebel Ali Free Zone
 Dubai
 Tel. +971 (0)4-8833112
 Fax +971 (0)4-8833240
 E-mail: geze@emirates.net.ae

United Kingdom

GEZE UK Ltd.
 Blenheim Way
 Fradley Park
 Lichfield
 Staffordshire WS13 8SY
 Tel: +44 (0) 1543 443000
 Fax: +44 (0) 1543 443001
 Email: info@geze-uk.com

GEZE Representative